

a minute, coloured blue. Even with very small traces of chlorine, not detected with iodised starch paper, the reaction is evident. For very small traces of chlorine it is rendered more delicate still if 3 or 4cc. of the solution to be tested are poured into a test tube, and then some 1 to 1.5cc. of the diphenylamine sulphate solution are so added that the liquids form two layers. If the tube be suddenly agitated to cause complete mixing, a strong blue colour is at once formed, which only momentarily appears, and then vanishes. During the agitation a piece of white paper is held obliquely to the cylinder, so that the momentary appearance of blueness may be readily perceived. Suppose even on agitation no reaction ensues, then about 1cc. of pure concentrated sulphuric acid should be run down the side of the cylinder so that it collects on the bottom, and forms a layer. The slightest trace of chlorine will now manifest itself by the sulphuric acid becoming blue. Traces of free bromine are not detected by the diphenylamine test.—W. S.

Influence of Boric Acid on some Colour Reagents. A. Joly. *Chem. Zeit.* 9, 779.

Boric acid does not effect a change in the colour of the dye helianthin, tropæolin OO, or orange No. 3 (Poirrier). The author therefore recommends the use of a standard solution of borax for the titration of acids instead of normal alkali.—D. B.

Monthly Patent List.

ENGLISH APPLICATIONS.

1885.

I.—GENERAL PLANT, APPARATUS, AND MACHINERY.

- 10750 A. Langdon, London. Improvements in apparatus or means for utilising heated air as motive power. September 11
 10761 H. C. Patterson and R. Miller, Glasgow. Improvements applicable to steam-boiler and other furnaces. September 11
 10805 J. Murrie, Glasgow. Improvements in apparatus for indicating temperature or pressure. September 12
 10833 G. F. Redfern, London—Communicated by L. Evesque and M. H. Fontès, France. An improved apparatus for automatically registering and recording high temperatures. September 11
 10907 J. Murrie, Glasgow. An improved apparatus for separating vapours from liquids. September 15
 10912 J. B. Allott, London. Improvements in filter-presses and in apparatus connected therewith. September 15
 11036 A. Poppe and R. Mogg Bryant, London. A new composition for preventing and removing incrustation in steam boilers. September 17
 11271 E. W. Killick, London. Improvements in kilns. September 22
 11467 J. Pickering, Walton, Liverpool. Iron-jacketed hot-air furnaces for heating drying chambers. September 26
 11812 J. Gray, Glasgow. Improvements in centrifugal machines for separating liquids of different specific gravity. October 5
 12189 A. Gapper Southby and F. Delacourt Blyth, London. Improvements in the mode of and apparatus for making ice and pumping highly rarefied condensable vapours. October 13
 12195 W. P. Thompson, Liverpool—Communicated by A. Backus, jun., United States. Improvements in or appertaining to furnaces. Complete specification. October 13
 12310 J. Gwynne and D. Home Morton, London. Improvements in or pertaining to centrifugal pumping machinery. Complete specification. October 15

II.—FUEL, GAS, AND LIGHT.

- 10773 H. E. A. Wallis, London. Improved construction and arrangement of apparatus for conducting gas flame heat to hydrocarbon containing vessels for increasing the brilliancy or lighting power of coal gas. September 11
 10781 G. A. Schoth, London. Improvements in and connected with apparatus or appliances for mixing air with coal and other gas or vapour, and the utilisation thereof for lighting purposes. September 11
 10967 E. Coniston Mills, Altrincham. Improvements in apparatus for mechanically feeding fuel into furnaces. September 16
 11188 T. Lowe, Old Radford. Purifying waste gas-fume and restoring for use again, for purifying gas and other purposes, and for utilising the products. September 21

- 11190 G. Pettigrow, Darlington. Improved arrangement of hydraulic main ascension pipes, and anti-dip valve for the manufacture of gas. September 21
 11268 W. Barracough, London. A new and improved method of producing from kerosene oil of any density flame (producing light and heat) to be emitted through a burner without the aid of a wick for use in lamps, stoves, and heating apparatus, and improved apparatus for the purpose of effecting the same. Complete specification. September 22
 11358 R. Barker and H. B. F. Barker, London. Improved apparatus and appliances for consuming oils for the generation of steam, boiling of liquids, and like purposes, specially applicable to burning crude or unrefined liquid hydrocarbons. September 23
 11359 R. Barker, London. Improvements in means for heating furnaces for smelting or roasting. September 23
 11406 J. F. Smith and G. Duxbury, Leicester. An improvement in apparatus for heating all classes of public and private buildings. September 25
 11520 R. Walker, Sunderland. Making and manufacturing compound fuel. September 28
 11616 F. Ducher and A. Serraillier, London, and T. Miéplu, Paris. Producing light and heat by means of an apparatus to which we give the name of hydrocarburator. September 30
 11661 J. Foord and W. W. Paddon, London. Improvements in obtaining light and heat by the combustion of hydrocarbons, and in apparatus to be employed for this purpose. September 30
 11713 H. Howell, Liverpool. Improvements in apparatus for manufacturing illuminating gas from volatile liquid hydrocarbons. October 1
 11911 P. C. Bunn, London. Improvements in the preparation of oxides of iron, for use in gas purification, or for other purposes. October 7
 12121 W. Smith, London. A new fuel. October 12
 12129 G. E. Davis, London. Improvements in the manufacture of illuminating gas. October 12
 12187 S. C. Joyce, W. Smith, and W. Neall, London. Patent non-charring wicks. October 13

III.—DESTRUCTIVE DISTILLATION, TAR PRODUCTS, ETC.

- 12059 M. Beaumont Parrington, London. Improvements in coke-ovens and in doors for the same, and for other furnaces. October 10
 12298 H. Stier, Zwickau, Saxony. An improved process of extracting from carboniferous materials the products met with, the processes of converting into gases and of withdrawing gases (for instance, process of distilling, of smouldering, and the like). Complete specification. October 15

IV.—COLOURING MATTERS AND DYES.

- 10531 H. H. Lake, London—Communicated by Wirth & Co., for Leonardi & Co., Germany. Improvements in the manufacture of colouring matters. September 12
 10937 H. J. Hadden, London—Communicated by F. Bayer and Co., Germany. Improvements in the process of manufacturing paranitro-benzaldehydes. September 15

V.—TEXTILES: COTTON, WOOL, SILK, ETC.

- 10756 J. Smith, Jersey. Improvements in machinery for decorticating fibrous substances. September 11
 11053 O. W. G. Briclegh, London—Communicated by H. Plaisier, Holland. Improvements in treating reed or ramch. September 17
 11129 J. Kenyon, London. A stiffening finish for crapes of all kinds, as silk, or silk and cotton, or cotton crape, also for linen, lace, or calico. September 25
 11561 G. Kassner, London. A process or manner of manufacturing caoutchouc, wax, fat, colouring matter, vegetable fibre, fibre wool, and cattle food from lactucarious plants, or from plants or vegetables bearing milky juice, or from their extracts, such as opium, lactuca, and their likes. September 29
 11660 G. F. Redfern, London—Communicated by E. Frémy and V. Urbain, France. Improvements in obtaining and treating fibres from the barks of plants of the Urtica family, and the like. Complete specification. September 30
 11892 H. J. Hadden, London—Communicated by J. Breuer, France. Machinery for decorticating ramie and other textile plants. October 6
 12011 G. F. Redfern, London—Communicated by C. de Baillencourt, France. Improvements in or applicable to machinery or apparatus for treating flax, hemp, and other textile materials. Complete specification. October 9
 12055 W. H. Greenwood, Bradford. Improvements in apparatus for washing wool and other fibres. October 10

VI.—DYEING, CALICO PRINTING, PAPER STAINING, AND BLEACHING.

- 12002 J. Robertshaw, Manchester. Improvements in machinery employed in dyeing, sizing, and wringing hanks. October 9
 12159 S. Smithson, Bradford. An improved method of and apparatus for dyeing. October 13

VII.—ACIDS, ALKALIS, AND SALTS.

- 10801 J. Ballantyne Hannay, Glasgow. Improvements in obtaining ammonia or its hydrochloride, and in apparatus therefor. September 12
- 10812 G. F. Redfern, London—Communicated by J. Waleknaere, Belgium. Improvements in treating acid vapours from chemical works. September 12
- 10819 J. Hay Hill, Bury. Improvements in the recovery of alkali and utilisation of by-products. September 11
- 11151 J. Milligan, London. Improvements in the manufacture of calcined magnesite. September 19
- 11178 P. A. Mawdsley and T. Macfarlane, London. Improvements in the manufacture of sulphur from alkali waste by means of metallic chlorides. September 19
- 11219 F. G. Hiley, London. Improvements in and relating to apparatus for generating carbonic acid gas. September 21
- 11192 J. Brock and E. Saye, London. Improved means or apparatus for distributing or conveying acids or other liquids to the cisterns or tanks of chemical towers or to vats or other receptacles. September 26
- 11152 T. H. Cobley, Dunstable. Improvements in the manufacture of vitrified ash, and application of same to useful purposes. September 23
- 11717 H. Fullarton, Glasgow. Improvements in the utilisation of alkali waste. October 2
- 12132 S. Bowen Bowen, London. Improvements in apparatus for the concentration of sulphuric acid. October 12

VIII.—GLASS, POTTERY, AND EARTHENWARE.

- 11081 H. Venables, London. A new or improved method of glazing china, porcelain, earthenware, and parian. September 18
- 11203 A. Landler and C. Houdaille, London. An improved mode of decorating objects of glass, crystal, or ceramic ware. September 21
- 11351 J. Slater, London. Improvements in ornamenting glass, china, or other vitreous surfaces. September 23
- 11365 A. Dixon Brogan, Glasgow. Improvements in the manufacture of plate glass, and in apparatus therefor. September 21
- 11431 A. Shaw, Hanley. An improved process to be employed in printing with metallic substances, such as gold, silver, and similar substances, in a liquid state, for ornamenting or decorating glass, porcelain, china, and stoneware substances generally. September 25
- 11393 A. M. Clark, London—Communicated by La Société Appert Frères, and La Société Geneste-Herscher et Cie., France. Perforated glass, and processes and apparatus for manufacturing the same. September 29
- 11681 W. Jones, London. Improvements in means for drying bricks and other articles of clay, porcelain, terra cotta, or earthenware, such improvements being applicable for drying purposes generally. October 1
- 11728 H. Fitzroy Webb, Birmingham. Improvements in the manufacture of decorated glass ware. October 2
- 11961 E. Powell, F. Bishop, J. W. Bishop, and J. Stonier, London. An improved manufacture of ivory porcelain. October 8
- 11965 E. Powell, F. Bishop, J. W. Bishop, and J. Stonier, London. Improvements in the manufacture of ornamental porcelain and earthenware. October 8
- 12128 E. Lee, Leeds. An improved method of ornamentation of glass and other substances. October 12

IX.—BUILDING MATERIALS, CLAYS, MORTARS, AND CEMENTS.

- 10761 C. Smith, London. Improvements in facing tiles or plates for concrete constructions. September 11
- 10881 J. T. Welch, London. Improvements in the manufacture of bricks, pipes, tiles, household utensils, and other kinds of pottery goods. September 11
- 10931 H. Stone, London. Improvements in the manufacture of cement, and in machinery or apparatus in connection therewith. September 15
- 11001 W. Hassall, London. An improved composition or cement specially applicable for use in jointing stoneware, concrete, or like pipes. September 16
- 11098 R. Stone, London. Improvements in the manufacture of cement. September 18
- 11171 J. Watson, London. Improvements in the manufacture of cement. September 19
- 11270 E. W. Killick, London. Improvements in the manufacture of cement. September 22
- 11282 J. Howie, Glasgow. An improvement in the manufacture of bricks, tiles and slabs. September 25
- 11285 J. Ludlum and S. Smith Harvey, London. Improvements in fire and sound proof flooring. September 22
- 11462 C. Walton, London. Improvements in machinery for making and pressing clay and other material into bricks, tiles, and other forms or shapes. September 26
- 11519 J. Parker, Glasgow. Improvements in the manufacture of fireclay bricks. September 29
- 11790 J. Lowthwaite, London. Improvements in paving and the preparation of blocks to be used in part therewith. October 3
- 11806 W. T. Timowell, London. Improvements in the manufacture of cement. October 3
- 12118 G. Mingay Garrard, London. Improvements in machinery and apparatus for the manufacture of tiles. October 12

X.—METALLURGY, MINING, ETC.

- 10816 C. Bernard Holland, London. Improvements in annealing thin sheets and plates of iron and steel, and in furnaces suitable to be employed therein. Complete specification. September 12
- 10910 A. J. Boulton, London—Communicated by H. M. Pierce, United States. Improvements in the reduction of ores and obtaining the metal therefrom by the utilisation of waste gases from carbonisation of vegetable matter. Complete specification. September 15
- 11067 W. Beaton, Rotherham. An improved process for recovering tin from waste tinned iron. September 18
- 11280 D. Davis, London. Improvement in means or apparatus employed in coating metal plates with tin, terne, or other metals or alloys. September 22
- 11311 J. Robb, Dundee. Improvements in the methods of and composition for case-hardening metals. September 23
- 11361 T. Williamson, Wishaw, N.B. Improvements in apparatus for treating iron and ores, etc., and for making steel therefrom. September 21
- 11367 T. Williamson, Wishaw. Improvements in cupolas for smelting metals, ores, etc. September 21
- 11492 B. Howarth Thwaite, Trammere. A method of decarbonising, desilicifying, dephosphorising, desulphurising fluid iron metal from blast furnaces or from cupolas, and apparatus therefor. September 25
- 11427 W. P. Thompson, Liverpool—Communicated by L. Imperatori, Germany. Improvements in the purification of iron by the basic process, and in obtaining by-products therefrom. September 25
- 11499 J. S. Selson, London. Process and means for soldering aluminium. September 26
- 11538 A. M. Clark, London—Communicated by C. Cholat and F. Mercier, France. Improvements in and apparatus for treating and purifying cast-iron for the manufacture of iron and steel. September 28
- 11621 E. R. Blundstone, London. The utilisation of waste tin, tin-plate, lead, and terne-plate. September 30
- 11689 C. M. Pielsticker, London. Improvements in the production of metal wire, tubes, and the like, direct from the molten metal, and in apparatus connected therewith. October 1
- 11753 R. Evans, London. Improvements in machinery or apparatus for use in pickling and swilling metal plates. October 2
- 11798 O. Imray, London—Communicated by L. Bondy, Austria. An improvement in the process of extracting wrought iron and steel directly from ores. October 3
- 11802 A. J. Maskrey and W. Jones, Glasgow. Improvements in the manufacture of tin and terne-plates, and in coating other articles with tin. October 3
- 11851 B. D. Healey, Liverpool. Improvements in the method of making steel, and in apparatus therefor. October 6
- 11873 R. W. Taynton, London. An improved bath for annealing steel. October 6
- 12110 K. Küpfer, London. Process and compound for welding cast-steel or wrought-steel in bars without heating to a white heat with steel or iron, and for regenerating the welded steel. October 12
- 12111 H. Brunner, Liverpool. Improvements in or relating to the treatment of phosphatic slags for the recovery of valuable materials therefrom. October 12
- 12213 T. Childs Huntington and M. Chlapponi, London. Improvements in effecting the extraction of silver from ores, alloys, or compounds containing the same. October 11
- 12241 T. Childs Huntington and M. Chlapponi, London. Improvements in effecting the extraction of antimony from ores or compounds containing the same. October 11
- 12265 A. Fehlen, London. Improvements relating to the dephosphorisation of iron ore and to the production of phosphate of soda and phosphate of ammonia. October 11

XI.—FATS, OILS, AND SOAP MANUFACTURE.

- 11590 A. Twistleton Hall, London. Extracting oils from certain waste products. September 25
- 11616 A. Wilkinson, London. Improved compounds or compositions for cleansing and polishing. September 29
- 11726 W. Marriott and H. Marriott, Halifax. An improved process for improving or increasing the viscosity of oils. October 2
- 11711 T. McGuffie, Liverpool. Improvements in apparatus for cutting bars of soap into lengths. October 2
- 12305 R. Livesey, London—Communicated by Dr. Duncan, Russian. Improvements in liquid soap. October 15

XII.—PAINTS, VARNISHES, AND RESINS.

- 10838 A. J. Ward, London. Improved compound or body for the manufacture of pigments, applicable also to the purposes for which white or red lead is ordinarily used. September 12
- 11129 G. L. Wigg, M. Steele, and W. J. Wigg, Liverpool. Improvements in plant or apparatus to be used in the treatment of residuals from copper works and chlorine manufacture to obtain pigments and sulphate of iron. September 19
- 11177 O. Imray, London—Communicated by Dr. E. A. Behrens, Germany. Improved process for bleaching and refining resins and similar substances. September 19
- 11210 A. M. Clark, London—Communicated by W. E. Harris, United States. An improved process for making metallic paint from lead. September 21

11529 E. L. Kitchingman and A. Andrews, London. An improved waterproof and anti-corrosive composition suitable for coating ships' bottoms, and such like purposes. September 28

11513 G. W. Carr and J. Dickenson, London. An anti-fouling composition for protecting and preserving ships' bottoms and other submerged surfaces, applicable also for coating metal, wood, and other underground surfaces. September 28

11639 H. Oliver and J. H. Craven, London. A composition to be applied to bright metallic surfaces to prevent rust or oxidation of the same. September 30

12219 S. Banner, Liverpool. A new or improved substitute for turpentine. October 11

XIII.—TANNING, LEATHER, GLUE, AND SIZE.

11283 J. J. Flitch and J. R. Flitch, London. Improvements in emery wheels employed in the manufacture or preparation of leather. September 22

11284 J. J. Flitch and J. R. Flitch, London. Improvements in the means or apparatus for staking or grounding leather, also for perching or softening the same. September 22

11861 A. Hiltch, Acerrington. Improvements in boiling size under steam pressure. October 6

11880 J. Wess Davies, London. The industrial utilisation of leather waste. October 6

12392 H. England Howe, London. An improved method of rendering leather used for the outer soles of boots and shoes more durable and pliable and proof against damp. October 15

XIV.—AGRICULTURE, MANURES, ETC.

10800 S. Deadman Cox, London. An improved process and apparatus for the treatment of coarse and inedible fish, broken fish, and the refuse from fish-curing establishments for manurial purposes. September 12

11609 H. Nicholls, London. Improvements in the mode of fixing ammonia and other gases for manurial and other purposes, and in apparatus employed therefor. September 29

11836 N. Barrett Fowler, London. An improved process of treating phosphatic earth or rocks for the purpose of rendering the phosphoric acid available as a plant-food. October 5

12231 J. Davies, Manchester. Improvements in and in the manufacture of fertilising compounds. October 14

12312 W. H. Lake, London—Communicated by G. Stollwerck, Germany. An improved method of and apparatus for causing the germination of barley and other cereals. October 15

XV.—SUGAR, STARCH, GUMS, ETC.

10836 J. Ramsay Woodburn, St. John's, Canada. Pulverising sugar and other friable substances to an impalpable powder, called "Woodburn's pulveriser." Complete specification. September 12

10811 F. J. Luens Tytler, London. A new material resembling gutta-percha, and the process for manufacturing the same. September 12

10931 P. A. Newton, London—Communicated by P. C. Matherson and C. W. Torrey, United States. Improvements in the method of applying gum balata for insulating wires. September 15

10936 H. J. Haddan, London—Communicated by L. E. Vial, France. Improved process for removal of gum from grass and plants. September 15

11618 W. Thomson, J. Mylne, and J. B. Elliott, London. Improvements in apparatus for the expression of juice from the sugar cane. Complete specification. September 29

11671 J. Bagnall, Manchester. Improved means of dissolving vulcanised indiarubber and indiarubber compounds. October 1

11899 G. S. Baker, London. Improvements in machines for baking sugar, wafer cakes, and the like. Complete specification. October 6

XVI.—BREWING, WINES, SPIRITS, ETC.

10910 E. Fielding, London. An improved apparatus for automatically regulating the flow of wort and other liquids from coolers or like vessels. September 16

11935 W. S. Squire, London. Improvements in the manufacture of yeast. October 7

11970 W. P. Thompson, Liverpool—Communicated by C. Ordonneau, France. Improvements in the production of alcohol. October 8

12035 G. G. Pickling, W. Hopkins, J. Dore and J. Dore, London. Improvements in the manufacture of vinegar. October 9

12036 G. G. Pickling, W. Hopkins, J. Dore and J. Dore, London. Improvements in the manufacture of spirits. October 9

12058 W. S. Squire, London. Improvements in the manufacture of yeast. October 10

12239 J. Hayes, London—Communicated by H. Hackmann, Bavaria. An improvement in the production of malt. Complete specification. October 14

12294 T. Webb, London. The principle of heating wash before entrance into the analysing column of distilling apparatus. October 15

XVII.—CHEMISTRY OF FOODS, SANITARY CHEMISTRY, DISINFECTANTS, ETC.

(A) CHEMISTRY OF FOODS.

11489 J. D. Treharne, London. An improvement in the manufacture of tea by combination with the coco-leaf. September 26

11663 S. Fulda, London. Improvements in preserving fruit, vegetables, and analogous productions from decay, deterioration, and discoloration; and in preserving the sugar held in suspension therein from granulation. September 30

11881 J. A. R. Main and J. Dick, Glasgow. Improvements in apparatus for withering and drying leaves of plants, seeds, and analogous substances. October 6

(B) SANITARY CHEMISTRY.

10823 J. McIntyre, jun., London. Improved appliances for disposing of sewage in bulk. September 12

10879 C. T. Kingzett, London. Improvements in the treatment and utilisation of sewage. September 14

11038 E. Davenport Latham, London. Improvements in means or apparatus for decolorising or purifying the gases escaping from sewers or other chambers, receptacles or chimneys. September 17

11115 E. Maxwell Dixon, Glasgow. An improved process for purifying refuse waters from mines, public works, and other sources. September 18

11255 G. H. Keeling, Epsom. Destroying bad smells and noxious gases in sewers, and efficiently ventilating them by the action of fire in flame or by heat-producing substances. September 22

11436 C. T. Kingzett, London. Improvements in the treatment and utilisation of sewage. September 25

11491 J. Scurrah Randles, London. Improvements in the treatment of sewage, town refuse, and other foul substances. September 26

11716 M. Holt, London. Improved means for ventilating sewers, and deodorising sewage gas. October 1

11750 T. Mercer, Liverpool. Improvements in disposing of sewage so as to prevent the pollution of rivers, and in plant or apparatus therefor. October 2

11996 E. M. Knight, Halifax. Improvements in filters, and in the arrangement and combination of ingredients, or filtering medium employed therein. October 9

12206 E. Edwards, London—Communicated by J. Buisson, France. Improvements in apparatus and appliances for purifying and cleaning water in canals or other watercourses. October 13

12261 J. Hanson, London. Process and means for disinfecting, deodorising, and purifying sewage and other foul waters or matters. October 14

(C) DISINFECTANTS.

10876 E. Burges Watson and H. Brock Fulton, London. Improvement in the preparation of hygienic and disinfecting substances, and use of the same, as candles, night-lights, and such like. September 14

11988 J. L. Sabunje, London. Disinfecting and deodorising purposes, consisting of the combination of soap with permanganate of potash, "Crown perm. of pot. soap." October 8

12060 E. Foster and W. H. Bibby, Preston. An improved disinfecting, deodorising, and fumigating powder. October 10

12238 A. Bonke and F. G. Adair Roberts, Stratford. Improvements in disinfectants. October 11

XVIII.—ELECTRO-CHEMISTRY.

11153 E. J. Fraser, San Francisco. Improvements in treating wines and liquors with electricity, and in an apparatus for the purpose of carrying out the same. September 19

11221 M. Humm, London. Further improvements in electric baths. Complete specification. September 22

11652 T. J. Jones and W. H. Tasker, London. Improvements in the manufacture of plates or elements for voltaic batteries. September 30

11876 T. V. Hughes and C. R. Chambers, London. Improvements in the manufacture of carbon filaments for electric lighting. October 6

11879 J. Tatham, London. Improvements in the manufacture of metal-covered electrical conductors, and in apparatus therefor. Complete specification. October 6

12001 J. Swinburne, Brockley. Carbons for electric lamps. October 9

12063 F. S. Fowler, Haslemere. Sodre bichromate constant current electric battery. October 10

XIX.—PAPER, PASTEBOARD, ETC.

10919 E. Davies, C. F. B. Birchall and A. Wood, London. Improvements in the manufacture of paper-pulp, and in apparatus therefor. September 15

11550 J. Napier and T. Graham Young, Glasgow. Improvements in apparatus and methods for treating with chemical agents vegetable substances capable of yielding pulp for paper-making or other useful applications. September 29

11948 H. J. Rogers, Watford. An improved process for renewing the worn surfaces of strainer-plates for straining paper-pulp, and apparatus used therefor. October 8

XX.—FINE CHEMICALS, ALKALOIDS, ESSENCES, AND EXTRACTS.

11238 D. D. Cattinach, London. Improvements in the method of and apparatus for the manufacture, distillation, and concentration of alcohol, hydrocarbons, and acetic acids. Complete specification. September 22

XXI.—EXPLOSIVES, MATCHES, ETC.

10825 O. Imray, London—Communicated by C. E. Birchel, Germany. Means of packing, storing, and applying liquid explosives. Complete specification. September 12

11045 G. H. Johnston, Lahardane, Mayo. Improvements in conical detonating sporting shells. September 18

11215 J. Graddon and P. Harding, London. Improved means and substances for producing an explosive agent, and the employment thereof for the working of engines for power purposes. September 21

11432 R. Punshon and the Patent Oxonite Company, London. Improvements in cartridges for blasting and other purposes. Complete specification. September 25

11419 J. Darlington, London—Communicated by J. C. Newbery, Australia. Improved means for removing, destroying, or neutralising the fumes resulting from the use of nitro-glycerine for blasting. September 25

11699 W. Bruce Thomson, Wick, N.B. An improvement in the manufacture of matches. October 5

12228 Erskine H. B. Stephenson, Clapham. Improvements in the use of chlorate mixture in cartridges. October 11

ENGLISH PATENTS PUBLISHED.*

APPLIED FOR DURING 1881 AND 1885.

I.—GENERAL PLANT, APPARATUS, AND MACHINERY.

1885.

8527 W. R. Lake—Communicated by J. W. Hyatt. Filtering apparatus. 1s
8806 D. Jarves. Retorts, and seals therefor. 6d

II.—FUEL, GAS, AND LIGHT.

1881.

15323 F. J. P. Cheesbrough and E. R. Hoyston. Means of burning coal, etc., in furnaces; and apparatus for supplying and distributing such coal. 6d

1885.

8810 P. Jensen—Communicated by J. E. Dery. Apparatus for the carburation of gas in railway or other carriage lamps and lanterns. 6d

9511 R. Dempster, jun. Centre valves employed in connection with gas purifiers. 6d

9773 H. J. Allison—Communicated by C. C. Yeaton. Process for generating hydrogen gas. 6d

III.—DESTRUCTIVE DISTILLATION, TAR PRODUCTS, ETC.

1881.

15821 J. McCulloch. Coke-ovens or retorts, and apparatus connected therewith. 8d

SECOND EDITIONS.

13629 of 1881 H. W. Fenner. Distillation of coal tar, etc. 6d
13630 of 1881 H. W. Fenner. Heating of stills or boilers employed in the distillation of coal tar, etc. 4d

IV.—COLOURING MATTERS AND DYES.

AMENDED SPECIFICATION.

816 of 1881 L. Gans and M. Hoffmann. New colour yielding products. 4d

V.—TEXTILES: COTTON, WOOL, SILK, ETC.

1881.

15377 W. T. Thompson—Communicated by G. H. Bérard. The preparation and utilisation of peat fibre. 2d

*Any of these specifications may be obtained by post, by remitting the cost price, plus postage, to Mr. H. Reider-Lack, Comptroller of the Patent Office, Southampton Buildings, Chancery Lane, London, W.C. The amount of postage may be calculated as follows:—

If the price does not exceed 8d.	4d.
Above 8d., and not exceeding 1s. 6d.	1d.
" 1s. 6d., " " 2s. 4d.	1d.
" 2s. 4d., " " 3s. 4d.	2d.

SECOND EDITION.

4981 of 1880 C. F. Cross. Treating jute, hemp, etc. 4d.

VI.—DYEING, CALICO PRINTING, PAPER STAINING, AND BLEACHING.

1881.

13929 J. H. Johnson—Communicated by E. Hermite. Improvements in bleaching, and apparatus therefor. 8d

AMENDED SPECIFICATIONS.

1638 of 1881 T. Holliday. Producing azo-colours on cotton, etc. 4d

2916 of 1882 C. Holliday. Producing azo-colours on cotton fibre, etc. 4d

VII.—ACIDS, ALKALIS, AND SALTS.

1881.

12806 J. Imray—Communicated by E. Schaal. Converting petroleum and similar hydrocarbons into acids, soaps, and compounds of resin and ether kind. 6d

11533 H. Whitehead and H. Hodgson. Manufacture of salt from brine, and apparatus therefor. 6d

11519 P. M. Justice—Communicated by L. E. Thomas. Treatment of alkaline chlorides. 2d

15393 S. Callard. Treatment of sulphate of iron. 2d

1885.

8511 H. Leplay. Decarbonating the carbonates of strontia and baryta; and apparatus therefor. 6d

VIII.—GLASS, POTTERY, AND EARTHENWARE.

1885.

7937 C. C. Thompson. Machines for making pottery, glass-ware, etc., from soft plastic materials. 6d

IX.—BUILDING MATERIALS, CLAYS, MORTARS, AND CEMENTS.

1881.

12803 E. Robbins. New compound chemical cements and concrete formations thereof for building. 6d

11321 P. M. Justice—Communicated by C. Dietsch. Furnaces for burning cement and other substances, and linings therefor. 6d

14130 A. B. Joy and J. J. Lowen. Process for making imitation marble. 2d

11712 J. N. Mocrath. Sanitary construction of fire and earthquake-proof houses, etc. 6d

15011 J. Thompson and J. H. Bryant. An improved artificial stone. 4d

15275 J. T. Welch. Utilisation of a waste product; and manufacture of bricks, tiles, etc., therefrom. 4d

16293 R. Smallman. Method of and apparatus for supplying lubricant to bricks during manufacture. 4d

1885.

8153 W. P. Thompson—Communicated by R. Bosse and F. Wolters. Process for rendering cements hydraulic. 2d

8730 D. Crossley. Manufacture of porous or cellular bricks. 2d

8939 O. Hertrampf. Improvements in brick-kilns. 4d

9087 A. W. L. Reddie—Communicated by T. Egleston. Method and compounds for preserving stone. 2d

X.—METALLURGY, MINING, ETC.

1881.

11736 J. Riley and W. Crossley. Manufacture of steel; and furnaces for melting and treating iron, steel, or other substances. 8d

15497 P. Kirk. Ovens or furnaces for heating ingots or blooms, or for maintaining the heat thereof. 6d

15501 J. J. Shedlock. Process and apparatus for the extraction of metals from their ores. 6d

15800 J. S. McDougall. Coating boilers and other vessels made of copper or of copper alloys with lead. 2d

15861 W. R. Lake—Communicated by G. M. Westman. The reduction of iron or zinc ores, and apparatus therefor. 8d

1885.

510 J. Riley and W. Crossley. Furnaces for melting and treating iron, steel, ores, etc. 8d

6230 J. G. Laurio. Moulds for casting steel or iron compounds thereof. 6d

8302 W. P. Thompson—Communicated by -- Osann. Purification of iron by the Thomas-Gilchrist process, etc. 4d

8061 W. Wood and M. H. Hurrell. Apparatus for refining copper and other metallic matters. 6d

8810 W. R. Lake—Communicated by W. H. Purdy. Purification of iron and steel. 2d

9169 H. Hall. Mode of coating metal plates or sheets with tin, lead, etc.; and apparatus employed therein. 4d

- 9193 F. P. y Pablos. Furnaces for melting. 6d
 9556 H. J. Haddan—Communicated by E. Phillips and T. Jones. Preparation of the charge for zinc furnaces. 4d
 9781 W. P. Thompson—Communicated by E. H. Cowles and A. H. Cowles. Process for obtaining aluminium and other metals from their ores, alone, or as alloys with other metals. 6d

REPRINTS AND AMENDED SPECIFICATIONS.

- 630 of 1886 H. Bessemer. Iron and steel. 8d
 12182 of 1881 J. E. Atwood. Purifying molten iron or steel. 4d

XI.—FATS, OILS, AND SOAP MANUFACTURE.

1881.

- 15031 C. Rumble and F. Sear. Preparation of oils used for lubricating wools preparatory to spinning. 4d
 15531 W. R. Lake—Communicated by A. F. le Myc. Purification of fatty or oleaginous substances, and apparatus therefor. 8d

1885.

- 9380 P. A. Newton—Communicated by S. Hornemann. Process for preserving crude animal fats. 2d

XII.—PAINTS, VARNISHES, AND RESINS.

1885.

- 4313 H. J. Allison—Communicated by S. Dohlmann & Co. Substance for lining or covering steam boilers, pipes, etc. 2d
 7121 D. Melville and J. F. Whitney. Paints, coatings, or compositions for coating ships' bottoms or other submerged structures. 4d
 8737 W. R. Lake—Communicated by J. P. Perkins. An improved paint or pigment. 4d

XIII.—TANNING, LEATHER, GLUE, AND SIZE.

1881.

- 15607 B. Hunt. Curing hides or skins. 4d
 15827 C. L. Royer. Process and apparatus to be employed in the steeping, lining, bating, and tanning of hides. 4d

XV.—SUGAR, STARCHES, GUMS, ETC.

1881.

- 11289 J. Sundstrom. Pans for evaporating cane juice and like solutions or liquids likely to boil over. 6d

1885.

- 6140 W. R. Lake—Communicated by W. T. Jobb. Manufacture of grape sugar or glucose. 6d

- 8786 H. J. Allison—Communicated by A. G. Day. Vulcanised kerite compounds, and processes for the manufacture of the same. 4d

- 8787 H. J. Allison—Communicated by A. G. Day. Vulcanised kerite compounds, and processes for the manufacture of the same. 4d

- 9326 W. R. Lake—Communicated by F. O. Matthiessen. Manufacture of hard sugar. 2d

SECOND EDITION.

- 815 of 1880 W. Morgan-Brown. Apparatus for moulding sugar. 6d

XVI.—BREWING, WINES AND SPIRITS.

1881.

- 11691 T. Horsburgh. Machine for the preparation of slings for beer and other liquids. 8d

1885.

- 4957 W. R. Lake—Communicated by W. T. Jobb. Treatment of maize in the manufacture of spirits. 8d

- 9798 A. J. Boulton—Communicated by A. S. Bigelow. Pressure regulators for fermenting liquids. 8d

- 9817 P. M. Justice—Communicated by A. W. Billings. Manufacture of beer. 6d

XVII.—CHEMISTRY OF FOODS, SANITARY CHEMISTRY, DISINFECTANTS, ETC.

(A) CHEMISTRY OF FOODS.

1881.

- 15778 E. Fontenille. Process for refrigerating and congealing liquids. 6d

(B) SANITARY CHEMISTRY.

1881.

- 13818 A. Angell. Manufacture of materials for use in the purification by filtration of sewage and other foul liquids and water, etc. 4d

- 11822 J. V. Johnson—Communicated by A. R. Leeds. Means for the purification of water. 6d

- 15810 J. W. Slater and W. Stevens. Preparation of an agent for use in the treatment of sewage and other putrescent matters, and treatment of such matters. 4d

- 16311 P. Smith and R. Wild. Means and apparatus for the purification and filtering of waters, sewage, etc. 6d

- 16592 J. W. Slater and W. Stevens. Purification of sewage by precipitation. 2d

1885.

- 900 F. M. Lyte. Purifying and deodorising sewage and other foul waters, and obtaining a useful product therefrom. 4d

XVIII.—ELECTRO-CHEMISTRY.

1885.

- 8661 W. Wood and M. H. Hurroff. Apparatus for refining copper and other metallic matters by electrolytic and chemical actions. 6d.

XIX.—PAPER, PASTEBOARD, ETC.

1881.

- 12193 C. W. Knowles. Preparing sulphate of lime for use in paper making. 4d

- 11859 H. Vessler and A. Willhaux. Cold process for the manufacture of paper pulps and bleached or unbleached textile fibres, and apparatus therefor. 6d

- 16891 T. H. Hodges. Machines for manufacturing paper, leather-board, and mill-board. 4d

XX.—FINE CHEMICALS, ALKALOIDS, ESSENCES AND EXTRACTS.

1885.

- 8523 H. E. Newton—Communicated by G. Michaelis and W. T. Mayer. Manufacture of chloroform and acetic acid, or purified acetates. 4d

XXI.—EXPLOSIVES, MATCHES, ETC.

1881.

- 11110 B. Brones. Manufacture of explosive compounds. 4d

- 11737 E. J. Mills. Formation or preparation of explosive charges. 4d

- 16311 J. N. Heideman. Manufacture of gunpowder. 2d

1885.

- 9022 H. E. Newton—Communicated by A. Nobel. Receptacle for hygroscopic explosives. 4d

XXII.—ANALYTICAL CHEMISTRY.

1881.

- 15970 F. Lux. Method and apparatus for stating the specific weight of gases and vapours. 6d